

Claims

- [c1] 1. A circuit assembly comprising:
a ceramic substrate having at least one circuit component on a first surface thereof, the ceramic substrate having a periphery defining a lateral surface surrounding the first surface;
an organic substrate comprising a first surface and a periphery defining a lateral surface surrounding the first surface, a portion of the lateral surface of the organic substrate being adjacent a portion of the lateral surface of the ceramic substrate so as to define an interface therebetween; and
at least one conductor common to both the ceramic and organic substrates so as to physically connect the organic and substrates together, the conductor bridging the interface between the ceramic and organic substrates.
- [c2] 2. A circuit assembly according to claim 1, wherein the organic substrate comprises multiple dielectric layers and the conductor is buried within the dielectric layers of the organic substrate.
- [c3] 3. A circuit assembly according to claim 1, wherein the

conductor is on the first surface of the ceramic substrate and is electrically connected to the circuit component on the ceramic substrate.

- [c4] 4. A circuit assembly according to claim 1, wherein the ceramic substrate has a coefficient of thermal conductivity that is greater than the coefficient of thermal conductivity of the organic substrate.
- [c5] 5. A circuit assembly according to claim 1, wherein each of the ceramic and organic substrates comprises conductor patterns and the conductor patterns of the organic substrate are denser than the conductor patterns of the ceramic substrate.
- [c6] 6. A circuit assembly according to claim 1, further comprising a heatsink in thermal contact with a surface of the circuit component oppositely-disposed from the ceramic substrate.
- [c7] 7. A circuit assembly according to claim 1, further comprising a circuit component on the first surface of the organic substrate and a heatsink in thermal contact with a surface of the circuit component oppositely-disposed from the organic substrate.
- [c8] 8. A circuit assembly according to claim 1, wherein the ceramic and organic substrates are housed within a cas-

ing, the casing comprising first and second casing members, the first casing member supporting the ceramic substrate, the second casing member having a first heatsink pedestal in thermal contact with a surface of the circuit component oppositely-disposed from the ceramic substrate.

[c9] 9. A circuit assembly according to claim 8, further comprising a circuit component on the first surface of the organic substrate, the second casing member having a second heatsink pedestal in thermal contact with a surface of the circuit component oppositely-disposed from the organic substrate.

[c10] 10. A circuit assembly according to claim 9, the first casing member having a pedestal in thermal contact with a surface of the organic substrate oppositely-disposed from the circuit component on the organic substrate.

[c11] 11. A circuit assembly according to claim 1, wherein the organic substrate comprises a second conductor and the conductor common to both the ceramic and organic substrates overlays and is soldered to the second conductor.

[c12] 12. A circuit assembly according to claim 1, wherein the organic substrate comprises a plated through-hole and

the conductor common to both the ceramic and organic substrates is solderlessly connected to the plated through-hole.

[c13] 13. A circuit assembly according to claim 1, wherein the organic substrate comprises a plated through-hole and the conductor common to both the ceramic and organic substrates is compliant and is received within and soldered to the plated through-hole.

[c14] 14. A circuit assembly according to claim 1, wherein the ceramic and organic substrates are substantially coplanar and the portion of the lateral surface of the ceramic substrate abuts and contacts the portion of the lateral surface of the organic substrate.

[c15] 15. A circuit assembly comprising:
a casing comprising first and second casing members;
a ceramic substrate having a first surface and a periphery defining a lateral surface surrounding the first surface, the ceramic substrate having a second surface oppositely-disposed from the first surface and in thermal contact with the first casing member of the casing;
a power integrated circuit chip on the first surface of the ceramic substrate, the power integrated circuit chip dissipating more than five watts;
an organic substrate comprising at least one circuit

component on a first surface thereof and a periphery defining a lateral surface surrounding the first surface, a portion of the lateral surface of the organic substrate abutting and contacting a portion of the lateral surface of the ceramic substrate so as to define an interface therebetween, the organic substrate has a coefficient of thermal conductivity that is lower than the coefficient of thermal conductivity of the ceramic substrate; and at least one conductor common to both the ceramic and organic substrates so as to physically connect the organic and substrates together, the conductor bridging the interface between the ceramic and organic substrates;

a first heatsink pedestal defined by the second casing member and in thermal contact with a surface of the power integrated circuit chip on the ceramic substrate; and

a second heatsink pedestal defined by the second casing member and in thermal contact with a surface of the circuit component on the organic substrate.

- [c16] 16. A circuit assembly according to claim 15, wherein the organic substrate comprises multiple dielectric layers and the conductor is buried within the dielectric layers of the organic substrate.

- [c17] 17. A circuit assembly according to claim 15, wherein each of the ceramic and organic substrates comprises conductor patterns and the conductor patterns of the organic substrate are denser than the conductor patterns of the ceramic substrate.
- [c18] 18. A circuit assembly according to claim 15, wherein the organic substrate comprises a second conductor and the conductor common to both the ceramic and organic substrates overlays and is soldered to the second conductor.
- [c19] 19. A circuit assembly according to claim 15, wherein the organic substrate comprises a plated through-hole and the conductor common to both the ceramic and organic substrates is solderlessly connected to the plated through-hole.
- [c20] 20. A circuit assembly according to claim 15, wherein the organic substrate comprises a plated through-hole and the conductor common to both the ceramic and organic substrates is compliant and is received within and soldered to the plated through-hole.